

## CLAIMS

What is Claimed is:

1. A vehicle air bag door comprising a door section that is provided at a panel main body and is opened by the activation of an air bag device,
  - 5 wherein the air bag door further comprises a back-up member provided on the bottom side of the panel main body,
    - wherein the back-up member comprises:
      - 10 a back-up section having a shooting aperture through which an air bag expands into a cabin;
      - a plate section located within the shooting aperture; and
      - 15 a hinge section through which the back-up section and the plate section are integrally connected,
        - wherein the back-up section, the plate section and the hinge section are integrally formed,
        - wherein a gap is formed between an outer edge of the shooting aperture and the plate section,
        - wherein the back-up section is welded to the bottom face of the panel main body at a portion thereof located around and outwardly of the door section,
        - 20 wherein the plate section is welded to the bottom face of the door section,
        - wherein the hinge section comprises:
          - 25 a first curved portion in which one end of the first curved portion is integrally connected to the back-up section, and a midsection of the first curved portion is curved so as to protrude toward the door section; and
          - a second curved portion in which one end of the second curved portion is integrally

connected to the other end of the first curved portion, the other end of the second curved portion is integrally connected to the plate section, and a midsection of the second curved portion is curved so as to protrude away from the door section, and

5 wherein when the door section is opened, the first and second curved portions of the hinge section are each extended and then the plate section is pivoted around its junction with the second curved portion.

2. The vehicle air bag door of Claim 1,

10 wherein the shooting aperture has an approximately rectangular shape, and corners of the shooting aperture are each formed to have a curved surface, wherein the hinge section is provided to extend along one side of the shooting aperture,

wherein the plate section comprises:

15 a plate section main body integrally connected to the hinge section; and extensions that are located outwardly of both longitudinal ends of the hinge section, integrally extended from the plate section main body to the vicinities of the corners of the shooting aperture, and welded to the bottom face of the door section, and wherein gaps are formed between the extensions and the outer edge of the shooting aperture, and between the extensions and both the longitudinal ends of the hinge section.

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3. A vehicle air bag door comprising a door section that is provided at a panel main body and is opened by the activation of an air bag device,

wherein the air bag door further comprises a back-up member provided on the bottom side of the panel main body,

25 wherein the back-up member comprises:

a back-up section having an approximately rectangular shooting aperture through which an air bag expands into a cabin;

a plate section located within the shooting aperture; and

a hinge section which is provided to extend along one side of the shooting aperture

5 and through which the back-up section and the plate section are integrally connected,

wherein the back-up section, the plate section and the hinge section are integrally formed,

wherein a gap is formed between an outer edge of the shooting aperture and each of the outer periphery of the plate section and both longitudinal ends of the hinge section,

10 wherein the back-up section is welded to the bottom face of the panel main body at a portion thereof located around and outwardly of the door section,

wherein the plate section is welded to the bottom face of the door section, and

wherein the hinge section comprises:

15 a cross-sectionally curved part extending in a lengthwise direction of the hinge section; and

ribs that are integrally formed with the hinge section at the bottom face of the curved part which is opposite to the door section and in the vicinities of both longitudinal ends of the curved part.

20 4. The vehicle air bag door of Claim 3,

wherein the curved part comprises:

a first curved portion in which one end of the first curved portion is integrally connected to the back-up section, and a midsection of the first curved portion is curved so as to protrude toward the door section; and

25 a second curved portion in which one end of the second curved portion is integrally

connected to the other end of the first curved portion, the other end of the second curved portion is integrally connected to the plate section, and a midsection of the second curved portion is curved so as to protrude away from the door section, and  
wherein the ribs are formed across the first and second curved portions.

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5. The vehicle air bag door of Claim 3,  
wherein the plate section comprises:  
a plate section main body integrally connected to the hinge section; and  
extensions that are located outwardly of both the longitudinal ends of the hinge  
10 section, integrally extended from the plate section main body to the vicinities of corners of  
the shooting aperture, and welded to the bottom face of the door section,  
wherein gaps are formed between the extensions and the outer edge of the shooting  
aperture, and between the extensions and both the longitudinal ends of the hinge section,  
and  
15 wherein the ribs are formed continuously from the hinge section to the extensions  
of the plate section.